IN THE CLAIMS:

Please cancel claims 2, 4, 7 and 9.

Please amend the claims to read as indicated herein.

1. (Currently amended) A vector-detecting apparatus that detects ~~the~~an in-phase component and ~~the~~a quadrature-phase component of a pre-determined frequency signal, said apparatus comprising:
   a first filter; and
   a second filter whose impulse response is orthogonal to said first filter,
   wherein ~~the~~an output of said first filter is regarded as the in-phase component of said pre-determined frequency signal, and output of said second filter is regarded as the quadrature-phase component of said pre-determined frequency signal,
   wherein an impulse response of said first filter is weighted by a sine function of the frequency of the pre-determined frequency signal and an impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined frequency signal, and
   wherein said first filter and said second filter are digital filters, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal.

2. (Canceled)

3. (Currently amended) A vector-detecting apparatus that detects ~~the~~an in-phase component and ~~the~~a quadrature-phase component of a pre-determined frequency signal, said apparatus comprising:
   a frequency converter;
   a first filter; and
   a second filter,
   wherein said first and second filters filter ~~the~~an output signal of said frequency

converter and whose impulse responses are orthogonal to each other, and wherein ~~the~~an output of said first filter is regarded as the in-phase component of said pre-determined frequency signal, and ~~the~~an output of said second filter is regarded as the quadrature-phase component of said pre-determined frequency signal.

<u>wherein an impulse response of said first filter is weighted by a sine function of the frequency of said pre-determined frequency signal after frequency conversion by said frequency converter, and an impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined frequency signal after frequency conversion by the frequency converter, and</u>

<u>wherein said first filter and said second filter are digital filters, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal.</u>

4. (Canceled)

5. (Currently amended) The vector-detecting apparatus according to claim 3, wherein ~~the~~a ratio of the frequency of said pre-determined frequency signal before conversion by said frequency converter and the frequency after conversion by said frequency converter is an integer of 2 or higher.

6. (Currently amended) An impedance measuring apparatus comprising a vector-detecting apparatus, wherein said vector-detecting apparatus comprises:

a first filter and a second filter whose impulse responses are orthogonal to each other;

wherein ~~the~~an output of said first filter is regarded as ~~the~~an in-phase component of ~~said~~a pre-determined frequency ~~signals~~signal, and ~~the~~an output of said second filter is regarded as ~~the~~a quadrature-phase component of said pre-determined frequency signal.

<u>wherein the impulse response of said first filter is weighted by a sine function of the frequency of the pre-determined frequency signal and the impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined</u>

frequency signal, and

wherein said first filter and said second filter are digital filters, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal.

7. (Canceled)

8. (Currently amended) An impedance measuring apparatus that measures ~~the~~an in-phase component and ~~the~~a quadrature-phase component of a pre-determined frequency signal, said apparatus comprising:

a frequency converter;

a first filter; and

a second filter, wherein said first and second filters are capable of filtering ~~the~~an output signal of said frequency converter and whose impulse responses are orthogonal to each other,

wherein ~~the~~an output of said first filter is regarded as the in-phase component of said pre-determined frequency signal, and ~~the~~an output of said second filter is regarded as the quadrature-phase component of said pre-determined frequency signal.

wherein the impulse response of said first filter is weighted by a sine function of the frequency of the pre-determined frequency signal after frequency conversion by said frequency converter and the impulse response of said second filter is weighted by a cosine function of the frequency of the pre-determined frequency signal after frequency conversion by said frequency converter, and

wherein said first filter and said second filter are digital filters, and said impulse response of each of said first filter and said second filter has a natural number that is a multiple of one period of said pre-determined frequency signal.

9. (Canceled)

10. (Currently amended) The impedance measuring apparatus according to claim 8, wherein ~~the~~a ratio of the frequency of said pre-determined frequency signal

before conversion by said frequency converter and the frequency after conversion by said frequency converter is an integer of 2 or higher.